AMERICAN VETERINARY REVIEW,

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EDITORIAL.

To OUR READERS.—Conception of the American Veterinary Review—its incubation, birth, nursing and rearing—its growth and object—necessity of a larger circulation—means to obtain it—the subscription reduced from four to three dollars a year. UNITED STATES VETERINARY MEDICAL ASSOCIATION.—Its organization at the Astor House in 1863—the quarter of a century anniversary in 1888—the meeting at the Rossmore Hotel—but few of the original members present—about forty out of nearly two hundred of the actual membership answer the call—meeting good when compared with preceding ones in New York—two good papers read, but not discussed—the committee on tuberculosis—the meetings in New York always failures when compared with others—a remedy wanted. LEGISLATION AND MEDICAL EDUCATION.—The paper of the counsel of New York State and County Medical Societies—veterinary medicine ignored—an oversight, certainly—veterinarians ought to appeal for an equality of consideration in the matter. ANTIFEBRINE OR ACETANILID.—Dr. J. C. Meyer's, Sr., paper before the Ohio State Veterinary Medical Association—a good example that veterinarians ought to follow. ANTIRABIC INOCULATION OF DOGS.—The discovery of Prof. Galtier—Pasteur's method has too many difficulties for its application—the recent investigation at Pasteur's laboratory—dogs can also be inoculated the same way that herbivorous animals are—simple mode of preparation of the vaccine matter.

To OUR READERS.—Without specifying with precision the period of the conception of the AMERICAN VETERINARY REVIEW, we are still able to fix accurately the date and the occasion of the parturient effort which terminated the season of its incubation. This occurred not many years ago, in Philadelphia, at one of the meetings of the United States Veterinary Medical Association, Professor C. P. Lyman being the officiating obstetrician, and the

writer being entrusted with the responsibility of nursing and rearing the expected bantling—a task which, in the peculiar condition in which we were then placed, was likely to prove anything but a light one, but which we nevertheless accepted. Perhaps we assumed too confidently and innocently that our desire to acquit ourselves satisfactorily would be held as an equivalent of the ability to do so, and trusted too largely for the approval of our contemplated labors to the good nature of our future readers. However this may be, we unhesitatingly consented to the burden, and whether our wisdom has been vindicated or our unwisdom exposed in the outcome, we have succeeded in nearly attaining the close of our twelfth volume, with what measure of credit can best be determined by those who have by this time become old acquaintances of the REVIEW.

The improvement of veterinary practice and the elevation of our professional standards being held prominently in view, the enlargement of our circulation now becomes an obvious necessity, and in order to meet this we have determined to effect the change in our terms of publication of which we have given intimations on previous occasions, and which we trust will secure the fulfillment of the desired result.

Our aim is to secure a *good circulation*, to avoid the accumulation of *bad debts*—and why should any man, needing and enjoying the aid and good counsel of this, or any other periodical, ever defer a single annual payment?—and, if it becomes inevitable, *a little yearly surplus!* (which we mention with an admiration mark.) Without the fulfillment of these conditions, the REVIEW will lack much of its efficiency as a means of the advancement and improvement of veterinary science. A large circulation is one of the indispensable needs of the case, and our terms have been readjusted accordingly, the change to take place with the conclusion of the present volume.

We announce, therefore, that beginning with the first number of the thirteenth volume, which will be the April number for 1889, the subscription price of the REVIEW will be, for veterinary practitioners $3.00, and for veterinary and medical students $2.00 per annum, payable invariably in advance.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.—Twenty-five years ago, on the third Tuesday of September, 1863, a large body of gentlemen met in the rooms of what was then the great New York hotel, the Astor House, and organized the United States Veterinary Medical Association. They supplemented their good day's work by meeting together to partake of such a sumptuous dinner as the Astor House was then and has continued to be famous for serving.

On the 19th of September, 1888, the same association again met in the rooms of the Rossmore Hotel and spent a day similar, in respect to the work done, to many others of which the history has been recorded for some years past, the members once more holding a supplementary meeting around the table of feasting, and doing honor to a splendid collation.

In 1863 all was activity, movement, discussion, anticipation and hope. Something like sixty members were present, and the dinner also was a lively event, it was such a grand result for the veterinarians of America which it commemorated, and such an epoch in their history.

The meeting of 1888 was remarkable for its quietness, its somnolence—in fact, the torpid condition which seemed to prevail and to affect the forty members, or thereabouts, present, and from which nothing could rouse them. At this meeting but three members were present of the number of those whose names had been signed on the roll of 1863—so few of them remain after an interval of twenty-five years. Since the first date, however, large accessions have been made to the membership of the Association, and the roll at the present time contains nearly two hundred names. Yet but forty of these were present, and among this number only a little over half a dozen were residents of the city of New York, the remainder of the assemblage being made up by members of the Bureau of Animal Industry, together with veterinarians from Massachusetts, New Jersey, Pennsylvania, Connecticut, Rhode Island, Virginia, Maryland, Ohio, Nebraska, Maine, New York State, South Carolina, etc.

It is, however, a pleasure to record the fact that although the meeting was not such a gathering as ought to be expected from

an association a quarter of a century old, yet it was probably an occasion of more interest than its last predecessor, held in the same place. If some little time was needlessly lost (which was literally the fact) in the early session, after the reading of the reports of the various committees, the afternoon session, though unfortunately a short one, was made interesting by the excellent papers read by Professor Huidekoper and our esteemed friend Dr. J. C. Meyer, Sr. The most important action of the meeting was, we believe, the disposition made of the suggestions of Drs. L. McLean and Liautard, to delegate a committee to the meeting of the American Medical Association in order to call the attention of that body to the prevalence of tuberculosis in the United States, and to suggest means of guarding against its dangers.

The United States Veterinary Medical Association, without question, contains within itself all the necessary elements of usefulness, and possesses ample power for the achievement of active progress in its sphere of operation, and there is no good reason why the record of its anniversary meetings should show such a lack of valuable and successful research and performance.

If the annual meetings in New York cannot provide matters of as much interest as the semi-annual gatherings in Boston, Philadelphia and Baltimore bring forward, and they ought to do more, let the officers try to discover the cause and suggest a remedy. If necessary, let it be even an heroic one, such as a *change in the place of the regular anniversary meeting.* While this would no doubt be regretted by nearly all, yet it should be done rather than suffer the members to lose entirely what little interest they may still retain in the repute and existence of our only national veterinary organization.

The next semi-annual meeting will be held in Boston at the usual time—the third Tuesday in March.

Legislation and Medical Education.—The *Medical Record* of September 15th, in an article in its editorial columns, calls the attention of its readers to a paper read before the Health Department of the American Social Science Association by the able counsel of the New York State and County Medical Societies, Mr. W. A. Purrington, relating to the important subject of legis-

lation as an aid to medical education. In these remarks of our worthy contemporary, and in his recapitulation of the various ways in which legislation may prove effective for good, we notice what we feel justified in calling a very reprehensible omission or intentional ignoring of the very important specialty of veterinary medicine, a branch of the science which has made such exceptional progress in the last few years. If legislation is necessary and helpful when designed to aid physicians, dentists, pharmacists or even accoucheurs, certainly no good reason can be alleged for conniving at the ignorance of the veterinarian, by leaving him unaided and excluded. So far from this, and notwithstanding the advances made in late years in veterinary schools, and their comparative excellence, they are far from being above needed improvements and regulations. We cannot suppose that Mr. Purrington omitted the veterinary profession from his paper because he considered it unworthy of the connection which we claim for it. We suppose rather that he was laboring under such misinformation as has led him to the erroneous supposition that our veterinary schools are all that they ought to be, and are above the need of help—a great mistake indeed. Veterinarians ought not to remain ignorant of such movements as that which may be now inaugurated in accordance with Mr. Purrington's paper; and through him and the medical press they should appeal for such an equality of treatment for their specialty as should secure for it such legislative sanction and control as are enjoyed by the physician, the dentist or the pharmacist.

Antifebrine or Acetanilid.—We print on another page a paper which was read by our friend and correspondent, Dr. J. C. Meyer, Sr., of Cincinnati, at the late meeting of the Ohio State Veterinary Medical Association, which from the importance of the subject and the ability of its treatment must have been listened to with much interest by the members of the Association and have elicited much profitable discussion. The subject is the effects of antifebrine, a comparatively new addition to therapeutics, and one which in the hands of the veterinarian cannot fail to prove a useful and valuable curative agent.

Dr. Meyer related his own experience with the new drug, and

seemed to be satisfied with the results which have thus far followed its employment in his hands. There is, however, something in this act of Dr. Meyer's which none of us should fail to remember, appreciate and imitate. To promote and advance the interests of our profession there is something demanded beyond the mere careful and correct performance of our professional duties, and the course of Dr. Meyer in presenting this report of his experiments with antifebrine is one that should be studied and imitated by those of our confreres who, unlike him, may be inclined to allow a nihilistic spirit to interfere with the better observance of the higher professional ethics. The pages of the REVIEW are never closed to any whose desire it may be to follow Dr. Meyer in the path of professional duty which he has thus indicated, in giving without reserve the results of his experience for the benefit of the profession at large, and consequently the general good. It is the true method of elevating and advancing the higher law of the healing art.

ANTIRABIC INOCULATION OF DOGS.—Our September number contained a reference to the prophylaxy of rabies in herbivorous animals, and the expression of our hopes that the ready mode of treatment of Professor Galtier would soon find extensive application at the hands of veterinarians. At the same time we could not but regret that carnivorous animals, and dogs principally, could not be subjected to the same treatment, and that the Pasteur method, with its difficulties of proper serial preparations, was the only one to which bitten dogs could be submitted, and that this treatment was so far the only positive one by which immunity could be secured.

The difficulties that are encountered in the preparation of the series of spinal cords, as conducted by Pasteur, the easy possibility of errors, and the uncertainties offered by the whole process could not have escaped the attention of those who have labored assiduously for years on the same line of research, and they must have felt keenly stimulated by the competition which they have encountered from the many laudably ambitious aspirants who have sought success and honor in a field of achievement so glorious and philanthropic.

A communication from Mr. Pasteur before the Academy of Sciences now seems to point out the probability of the discovery of a means of attenuating the virus by which the inoculation of a dog may be made to confer certain immunity upon that animal. On this occasion Pasteur reports that on the 16th of November, 1887, fifteen centimetres in length of the marrow of a rabbit of the 171st series, which had died rabid, was after exposure for forty-eight hours to a temperature of 35°, diluted in 30 cubic centimetres of sterilized bouillon, and that two dogs, trephined, and inoculated with this solution did not become rabid; *a fact which shows the greatest probability, if not the certainty, that this marrow, by treating it by the contact of pure and dry air, had lost its virulency in all its length.*

And yet these two dogs had gained immunity. Inoculated by trephining, more than six months later, with the bulb of a dog which had died from an attack of furious rabies, these animals resisted the operation, and are now alive and well.

Heated marrow, deprived of its virulency, had become vaccinal by a chemical vaccine. Should this be confirmed by other experiments, how simplified would be the prophylaxy of rabies in carnivorous animals, and especially in dogs.

ORIGINAL ARTICLES.

MALADIE DU COIT.

By W. L. Williams, V.S.

Report on the outbreak in Illinois to the State Board of Live Stock Commissioners.

Gentlemen:—I herewith submit my report upon the outbreak of equine syphilis, maladie du coit, or malignant venereal disease of solipeds, which has been lately brought to notice in De Witt County, Illinois.

This being the first well authenticated outbreak of this disease, so far as known, in any English speaking country, renders a thoroughly complete and accurate report both difficult and desirable; the English veterinary literature upon this subject being

practically all translations from foreign languages and in most cases very meagre in detail and inaccurate in many important particulars. From such as exist, however, I have not hesitated to draw freely whatever seemed of value, and acknowledge with pleasure the assistance derived from Dr. Fleming's very able and exhaustive treatise in his "Veterinary Sanitary Science and Police," from which, although differing radically from him in some important particulars, I have not hesitated to copy or condense the general history of the disease and his table of synonyms, and in nearly every part of the work have freely drawn whatever seemed of value to my purpose.

I acknowledge also with pleasure many kind and valuable suggestions regarding the work by Prof. Law and Dr. Casewell.

SYNONYMS.—Technical: *Lus venerea equis*, *Framboesia morbus pustulosus*, etc. French: *Maladie du coit*, *maladie vénérienne des solipedes*, *maladie paralytique du cheval*, *paralysie epizoötique*, *paraplegie epizoötique*, *morve de l' appareil de la generation*, etc. German: *Exzemansschlag*, *chankerkrankheit*, *gutartige beschälkrankheit*, *bosartige beschälkrankheit*, *pseudo-syphilis*, etc. Arabic: *El dourine*, *dourine* (Fleming.)

HISTORY AND GEOGRAPHICAL DISTRIBUTION.

The earliest account of the disease known is that by the German veterinarian Ammon, who witnessed it in 1796 and 1799 amongst stallions and mares in Trakehnen, North Prussia, where it persisted until 1801 and reappeared six years later; but the disease was probably known at a much earlier date in southern Russia. It appeared in Austria in 1815 and in Hanover in 1816, where it spread and prevailed until 1820–21. In 1821 it appeared in Syria and Silesia, reappearing in the latter country in 1826.

From 1827 to 1830 it caused great mortality in Bohemia, and in 1830 the disease appeared in Berne, Switzerland. From 1833 to 1836 the disease raged in upper Silesia and again in the same province in 1840–41. Horse breeders had now become so thoroughly alarmed that careful investigation by veterinarians and severe legislative enactments soon checked the ravages of the disease in Germany.

In 1847 Signol saw the disease in Algeria, where it caused a

loss of six hundred horses, and other writers mention the occasional appearance of the disease in the North African States.

In the spring of 1851 the disease broke out for the first time in France, in 31 communes around Tarbes, containing 1,874 mares, and out of 750 mares bred to government stallions 100 became diseased, and an additional 27 mares became diseased by private stallions; 52 of the affected mares died, and the disease almost entirely disappeared during the following year, only to reappear in 1856, 1857, 1858 and 1861. The disease was directly traced to stallions imported from infected countries in 1851 and 1861.

"This is, so far as I can trace it, the geographical limit of this curious disease. It has not been witnessed as yet in England, Belgium, Italy, Spain or Denmark, nor in countries beyond Europe, Asia or Africa, so far as I am aware, but there can be no doubt but that if diseased stallions or mares are imported to those regions now exempted from its effects, it will appear there as it has done in Russia, where it is frequent and violent, particularly in the southern governments—Germany, Hungary, Bohemia and France." The above history, abbreviated or quoted from Fleming, demonstrates to some extent the serious nature of the malady, the probably source of the disease in America, and the importance of dealing with it in a prompt and decisive manner.

THE HISTORY OF THE DISEASE IN DE WITT COUNTY, ILLINOIS,

and its source of origin, was for a long time somewhat obscure but now seems reasonably clear. Three sources of origin have been suggested. 1st, It was supposed that the disease was introduced direct from France, by Harrold & Culbertson, of Wapella, in January, 1884, when they imported 19 French draft stallions, aged from 18 to 30 months, all of good quality and showing no evident sign of disease.

In 1884 one died from injuries in transit and three were sold, which, so far as can be learned, remained free from the disease. In 1885 one died from unknown cause and one was sold to parties who in turn sold him to W. R. Carle of Wapella (No. VIII,)* and two, (XII and XIII) were sold to Foley & Seniff, of Wapella.

* Numbers refer to tabulated list of affected and exposed stallions and mares.

In 1886 two horses died, one probably of venereal disease, the other from unknown causes, and two were sold to California parties, which are reported well.

In 1887 there remained seven horses, six of which were used on the Harrold & Culbertson farm and all badly diseased, while the seventh horse was used for stud purposes at Danvers, Ill., and remains sound.

In April, 1884, Harrold & Culbertson brought from Texas 236 select western horses, about 170 of which were pregnant mares, which afterwards dropped and reared healthy foals.

These mares were then bred promiscuously to such stallions as were on hand in the years 1884 and 1885; nearly all the mares were impregnated and dropped healthy foals, which remain on the farm. In addition to these mares, the stallions were allowed to serve such outside mares as were offered. No signs of disease were noticed in 1884, but in 1885 it would appear that at least one outside mare and probably a few on the farm, developed the disease, but being wholly unheard of and unexpected, no special notice was taken of it until the spring of 1886, when the disease assumed such alarming proportions in both mares and stallions, that all breeding was discontinued on the Harrold & Culbertson farm. The objections to this theory of origin are, 1st, the stallions were too young to have been used extensively for stud purposes and hence unlikely to have been affected prior to importation; 2d, with the exception of VIII, XII and XIII, which were kept in the neighborhood, all stallions sold from the farm have, so far as known, remained healthy; 3d, they made the season of 1884, serving promiscuously a large number of mares, without producing the disease, and again in 1885 without affecting a sufficient number of mares to cause alarm.

A second theory of origin is by means of Texas mares, either from having been affected upon their arrival or generating the disease spontaneously by haphazard copulation.

Spontaneous origin being wholly unknown in other specific contagious diseases and the past history of equine syphilis in other countries, where it has always been traced to the importation of breeding animals from an affected district, should prove sufficient

to dismiss the idea of spontaneity, while the fact that the disease, so far as can be learned, is wholly unknown in Texas, and that all Texas mares brought to De Witt County were doubtless well until after being bred to affected stallions, should set at rest this theory of origin.

The third and most tangible theory is that the disease was introduced direct from France, by the imported brown "Moore" horse (No. XV.), now owned by J. Fisher, Clinton, Ill., imported in 1882 by Benson & Knapp, Monticello, Ill., at the age of three years, sold in spring of 1883 to Moore & Son, Clinton, Ill., and by them was placed in the stud near Clinton, serving a large number of mares besides those belonging to his owners, a fair percentage of which became impregnated and dropped healthy foals. In 1884 he was continued for a time in the stud without any complaint from patrons, but before the season was far advanced the horse became unwell. The genital organs became swollen and the penis sore in several places. At the ring of the penis (preputial ring) there was sufficient ulceration to destroy the ring at the front part. At the upper part of each flank there were extensive ulcerating sores, which healed tardily, leaving large unsightly scars. On the left side of the crest of the neck there appears a very plain brand, of the letters D N, which I am reliably informed by Prof. Law and Dr. P. Paquin, unmistakably indicates that this horse had been condemned by the French veterinary authorities for maladie du coit. The horse was sold some time after the development of the symptoms of disease, for a merely nominal sum, as a seriously diseased stallion, to his present owners, after having been taken from the stud and treated for his malady with indifferent results, and in 1886 and 1887 the horse's services were offered to owners of mares, but only a limited patronage was obtained. Nothing particularly farther was thought of the matter until the disease broke out in alarming proportions and inquiry was instituted to determine its origin, when it was learned that in 1883 Milton Chapin bred two black mares to the Moore horse and disposed of one to Sandusky Wilson, and the two mares were bred in 1884 to Utopia (XII) before he was sold to Foley & Seniff. It is now said that one or both of these mares were affected with

equine syphilis when bred to Utopia, and that they had contracted the disease from the Moore horse in 1883. Certain it is, that the Wilson mare was bred to the Moore horse in 1883 and to Utopia in 1884, and that she was seriously diseased in 1884, undoubtedly of equine syphilis, partially recovered, was sold to a Mr. Yakle of Waynesville, Ill., and by him to an unknown shipper. The other Chapin mare was traded to itinerant horse-traders and was soon lost sight of, but being at that time twenty years old or more it is probable that she is ere this dead.

Returning then to Utopia, after having served the Chapin and Wilson mares, he was kept in stud by Harrold & Culbertson, serving among others the "Marvel" mare (No. 383), and was sold apparently sound in March, 1885, to Foley & Seniff, and proving unequal to the demand, Black Brilliant (XIII) was purchased of Harrold & Culbertson to assist, and he proving unsatisfactory was exchanged June, 1886, for Perie (III).

During the summer of 1885 Utopia served about sixty mares without, so far as learned, diseasing any, and in the fall of 1885 he served some twenty mares, of which a few proved in foal, while some fifteen of them became affected, nine of which have died, and the others have mostly partially recovered, some of them scarcely showing any trace of the disease.

Here matters were allowed to rest apparently quiet until early in April, 1886, when the disease had assumed such alarming proportions in Wilson township that Messrs. Foley & Seniff asked me to see their stallions and some of the affected mares and advise with them as to the proper course to pursue. I examined six or eight mares affected since the fall of 1885, all exhibiting the constitutional symptoms of the disease as hereafter described.

The two stallions were carefully examined. Black Brilliant (XIII) appearing perfectly sound, and Utopia (XII) well except a slight swelling and redness of the urethral opening in penis and a slight dirty-brownish watery discharge from the urethra, which might occur in any stallion without attracting special notice. Not being fully aware of the extremely insidious, misleading and serious nature of the disease with which I had to cope, and hoping that the disease could be successfully confined to its then appar-

ent narrow scope, I advised that Utopia should be withdrawn from the stud until all symptoms of disease should disappear, prescribed such treatment as I thought best for both mares and stallion, and as the other stallion (Black Brilliant) exhibited no signs of disease, I advised that he be continued in the stud. The affected animals apparently improved for a time and I saw them once more in April, at which time I made some immaterial changes in the treatment, and here my personal observation of the disease ended until renewed by your directions in May of the present year. My second visit in April, 1886, brought me to a more full realization of the dangers to our horse breeding interests from this disease, and accordingly I reported the matter briefly to you under date of May 1, 1886.

Verbal reports of the spread of the disease in De Witt County reached me occasionally during the summer and fall of 1886, until early in 1887 the accounts became so alarming that I reported the matter more fully to you and urged decisive action.

Returning to the Harrold & Culbertson farm at the date of sale of Utopia to Foley & Seniff, it seems that Utopia previous to his sale had infected some mares wtthout attracting the attention of the owners, which in their turn transmitted the disease to other stallions and thus the malady continued to spread, unobserved in 1884, suspected in the autumn of 1885, and asserting itself positively in 1886.

The totally unknown and unsuspected nature of the affection, with its long periods of incubation, latency and want of such pronounced symptoms in its earlier stages as we usually expect in a deadly contagious disease, readily allowed it to gain a disastrous hold unobserved or at least unrecognized.

Previous to the general recognition of the dangerous character of the disease the usual traffic in horses went on uninterrupted, so that a number of exposed mares and certainly two or three diseased mares were disposed of ere the public was aware, but fortunately it seems that only a very few of actually diseased mares changed hands, and nearly all of these have been found and safely quarantined, and the others traced to dealers' hands, from whence in all probability they went to our large cities or northern pineries for

draft work, where they are not likely to ever again be bred. But some of the affected mares were unfortunately bred to neighboring healthy stallions, and in this way the disease was communicated to XVIII by a mare bred early in 1886 to XII–XIII by Henry Bell of Wilson township and to XVII by a mare bred by N. Foley in fall of 1885 to XII–XIII and afterwards sold to Kelly & Waters, and by them bred to XVII in 1886 and 1887. Were it possible to trace the history of every affected animal, we would doubtless find all cases emanating from one source of origin, and from the evidence now at hand it would seem that the most probable source of origin of the present outbreak is the Moore horse (XV.) Bearing in mind the history of the disease in the old world, we would naturally look to some imported animal for our source of infection, and since practically the only horses we import from a country known to be infected are those from France, we would consequently expect to trace the disease either directly or indirectly to that country.

Character.—There exists almost as many definitions for equine syphilis as there are different writers upon the subject.

The name maladie du coit signifies merely that it is a disease contracted by copulation, while in fact there is at least one other venereal affection of solipeds (horse, ass, etc.), which might as properly be termed maladie du coit as this disease.

English writers translating from German, French, and other foreign languages, refer to a benignant and a malignant form of the disease, but from my experience with venereal diseases of horses in the past, as well as from observations in the present outbreak, I am obliged to take exception to the generally accepted ideas of English writers and translators, and separate the so-called benign form from the disease under consideration as a wholly distinct venereal disorder, the reason for which I shall more fully allude to later, and we therefore prefer to discard the term maladie du coit and follow the nomenclature of writers of human medicine, denominating the fatal constitutional disease under consideration, equine syphilis, resembling closely as it does the syphilis of man, and applying the name equine chancre, or chancroid, to the benign, local, eruptive, venereal disorder which

closely resembles the soft or non-syphilitic chancre or chancroid of man in many of its characteristics. From the above standpoint, then, equine syphilis may be defined as a malignant, specific venereal disease, peculiar to solipeds.

The nature of the disease is not thoroughly understood, some believing it to be a neurotic (nervous) affection, while others, noting the very common changes in the lymphatics, designate it a lymphatico-nervous disease, etc. Others, relying on some similarity of symptoms and pathological changes, believe it identical with or closely allied to human syphilis. But the mercurial treatment so efficacious in the syphilis of man seems inert in this disease; the symptoms of the two disorders, while resembling each other in some respects, yet differ widely in many very essential particulars, and furthermore, carefully conducted experiments of Horand and Peuch of Lyons, demonstrate that human syphilis is not transmissible to solipeds.

"Without entering, then, into any further discussion of the views entertained with regard to the nature of the disease, we may at once aver that no definite conclusion can be arrived at, and we must be content with the statement that it is an eminently virulent malady of a specific nature, generally marked at first by local signs and subsequently by constitutional derangement of a grave character" (Fleming).

To be continued.

ANTIFEBRIN OR ACETANILID.

By J. C. Meyer, Sr., V.S.

(A paper read before the Ohio State Veterinary Medical Association at Cincinnati.

In the perusal of a trans-atlantic journal, the *Repertorium*, founded by the late Prof. Hering, and at present edited by Prof. Vogel in Stuttgart, my eye fell upon an article entitled "Antifebrin or Acetanilid," written by L. Hoffmann, Instructor at the Veterinary Institution at Stuttgart. This paper is worthy of further circulation.

Undoubtedly all of you gentlemen have heard of, and, perhaps, have already made use of this new febrifuge; still I trust a report on this theme from another source will be acceptable.

Hoffmann says: "In No. 33 des Central-blatters für klinische Medizin, Cahn & Hepp drew attention to a new antifebrile, four times stronger than antipyrin, thus far always reliable, having no unpleasant, much less toxical secondary effects.

"Stachiwitz, in the *allgemeinen medizinischen Zeitschrift*, No. 93, 1886, then drew attention to the fact, that 0.25 centigramms antifebrin is as efficient as 1 gramm antipyrin, and very much cheaper.

"At the time of these publications the clinical department of this institution was receiving a number of horses afflicted with influenza, having a high fever. A good percentage of these patients were treated with antifebrin with satisfactory results. Further experiments, especially with dogs and pigeons, proved that the remedy has not, as yet failed, nor caused any unfavorable after results. Therefore, I am now prepared to recommend acetanilid as one of the best, if not the best antifebrile agent.

"This preparation, which is very stable, is not decomposed on distillation, nor by means of acid and alkalies at normal temperature; it is almost insoluble in cold water, somewhat in hot water, and in alcohol, or in any fluids containing alcohol it is readily dissolved. It melts at 113° and boils at 293°.

"The experiments by Ansorow have shown that antifebrin, like thallin, operates on the regulating centres of warmth, and excites the vaso-dilatatores, so that the first symptom is a dilatation of the peripheric vessels, and a slight increase of the peripheric temperature; symptoms which can be reduced without fail, by an irritation of the nervus Ischiadicus.

"In regard to the decomposition of antifebrin in the system, Wendriner states that it is not found in the urine as antifebrin, nor as anilin, but considerable phenols are detected, about two to three per cent. of the quantity taken. What becomes of the other decomposed parts has not as yet been ascertained; probably they are emitted from the system as acetate of ammonia.

"Upon experimenting with antifebrin on animals, it was sub-

sequently employed in the human being, and from the numerous (nearly 200) compiled reports, I have the following to cite concerning its action: This remedy never fails to reduce the temperature of such suffering with fever, and of all the applications made, thus far known, there has been but one instance in which the temperature did not fall, but in this case, thallin also had no effect.

"The dose for human beings is 0.25 centi. to 0.1 decigr. Its action is more than twice as powerful as that of antipyrin or thallin. It has no disagreeable secondary effects. The temperature is more rapidly and lastingly reduced in the decrescent stage than when the disease is at its acme. The lowering of the temperature sets in two or three hours after its introduction into the system, and continues from three to five hours, then, at first a slow, later a rapid increase follows in the acme stage until it has reached the original height or over.

"In the decrescent stage it never reaches the old height of temperature again.

"In typhus, the temperature could not be kept down permanently, by giving antifebrin in oft repeated doses.

"According to Kowacs and other observers, antifebrin reduces the pulse and the pressure of the blood; Krueger, however, disputes this.

"The dreaded after-effects of other fever-allaying expedients, such as profuse perspiration, vomiting, chills, collapse, etc., are not manifested in the use of antifebrin. Slight chills (though very seldom,) frequent, but agreeable perspiration and diurese are met with. The stomach retains antifebrin very well, though according to Hinzelman, it operates equally well if brought high up in the rectum, from whence the action is speedier (after one hour) if the dose be of the same strength.

"In the treatment of wounds, Krueger regards antifebrin as a most powerful disinfectant, applied in the form of powder, or dissolved in ether or collodium, or in gauze.

"Riese claims to have observed a specific action in polyarthritis.

Fürbringer has administered it as high as 6 gramm into the

blood vessel of dogs and continued this large dose for seven days, before indication of poisoning set in; these appeared as paralytic manifestation, weakness of the hind part, syncope, cramp and death.

"Reckoning the weight of the body on the kilo, the death dose for a human being would be 30 gm.; 0.25 to 0.5 already act antifebrile. Oft-repeated smaller doses cannot be recommended, inasmuch as such scattered doses are entirely lost in the organism. Using this article in the clinic on animals, I found as a rule the above accounts substantiated.

"Certainly the results in our domestic animals cannot always be established, the information as to the subjective feelings being wanting, and slight after-affects overlooked.

"The supposition that since it requires 0.25 centi. to 0.5 decigramm antifebrin to generate antifebrile action in a human being weighing 140 pounds, 5 to 10 gramm would be necessary for a horse weighing 1,000 pounds, has been proven incorrect. A horse requires much larger doses if the expedient is to act as an antifebrile. 20 to 25 gm. doses were very often effectual. 30 gm. are most reliable. 100 gm. were administered to an anatomical subject in one day without result. Frequently it was given with digitalis and small doses of calomel.

"In all instances the action of antifebrin set in. In a few cases, when the result was not wholly satisfactory, it was shown that the medicine was not administered properly. In animals at death's door, the lowering of the temperature was traceable for a short time, to a slight degree.

"The value of the expedient lies solely in its antifebrile action. As long as the fever is reduced, the patients feel better. However, according to my experience, it is not a specific against fever-creating causes."

Gentlemen, the above account prompted me to give this remarkable agent a trial, and in many cases in which a lowering of the temperature was desired I gave the antifebrin and in the main points I found Dr. Hoffmann's statement verified; in fact, I observed, after administering the remedy, especially in enzootic pleuro-pneumonia, considerable sudation in some patients, in

others a profuse micturition took place—secretions which promise wholesome alterations in subjects prone to hydrothorax. At any rate I have not as yet noticed, whilst these phenomena were prominent, that a unilateral pneumonia terminated in a bilateral one. It may be stated right here, that during this last hot season the majority of my bilateral cases (sporadic) turned into gangrene in spite of antifebrin and every other available remedy.

Should the effect of antifebrin extend no further than to check the pyreticosis for some hours, this temporary relief certainly is a most welcome pause to every fever sufferer. The contented look, the inclination to accept some nourishment, often noticed in the remittent state, are evidences of a comfortable feeling, and are not to be underrated. I am inclined to believe that this remedy was conducive to the recovery of more than one of my patients.

In addition to the antifebrin, I give a compound of fld. extr. verat. vivid., as mentioned in the article on "Equine Pleuro-Pneumonia," recorded in Vol. VIII of the REVIEW.

The following specifications will illustrate my experience with antifebrin in a few of my cases:

No. 1.—A bay horse, 6 years old, weight 1,400 lbs., with pneumonia, unilateral.

March 20th.—Respiration, 32; pulse, 72; temperature, 106°. Respiratory function of right lobe diminished, which changed to an occult state until the 25th, when the patient's condition appeared favorable.

March 26th, A. M.—Respiration, 16; pulse, 60; temperature, 104°.

March 27th, A. M.—Respiration, 28; pulse, 66; temperature, 105°. Thus it will be seen that the three cardinal symptoms are again aggravated. Antifebrin ʒ i was administered.

March 27th, 7 P. M.—Respiration, 24; pulse, 56; temperature, 102°.

March 28th, A. M.—Respiration, 22; pulse, 72; temperature, 104°. Left lobe still intact, coughs freely, and has some appetite; symptoms which are indicative of improvement, hence the antifebrin was not repeated.

March 29th.—Respiration, 18; pulse, 52; temperature, 100⅕°.

No. 2.—A black horse, 5 years old, fat, weighing 1,500 lbs., with pneumonia.

March 31st.—Respiration, 30; pulse, 72; temperature 105⅘°. Schneiderian membrane hyperæmic, a profuse yellowish discharge from nostrils; attempt at, and suppression of cough, refuses all nourishment.

April 1st, 9 A. M.—Respiration, 32; pulse, 72; temperature, 105⅘. Antifebrin.

April 1st, 6 P. M.—Respiration, 40, pulse, 64, temperature, 102⅘°. Becoming thirsty and urinating freely.

April 2d, 11 A. M.—Respiration, 28; pulse, 72; temperature, 105⅘°. Coughs often, dry; air circulates through both lobes, though not so perceptibly through the right. Antifebrin.

April 2d, 6 P. M.—Respiration, 28; pulse, 58, temperature 102⅘°.

April 3d, A. M.—Respiration, 20; pulse, 60; temperature, 103⅘°. Cough dry, micturation copious, vesicular murmur of right lung inaudible.

April 4th, A. M.—Respiration, 20; pulse, 56; temperature, 102⅕°. Discharge of a whitish mucus; right vesicular murmur slightly audible; drinks water with flour; no appetite, micturation diminished.

April 5th, A. M.—Respiration, 40; pulse, 50; temperature, 102⅕°. From now on the appetite gradually improved, and by the 10th was convalescent.

No. 3.—A livery horse, 9 years old, nourished moderately, weight 1,100 lbs. Sporadic pneumonia, bilateral.

April 7th.—Respiration, 40; pulse, 72; temperature, 103°. Administered verat. virid. comp. with tinct. digitalis, and continued with this until the 9th without result, when antifebrin was given.

April 10th.—Respiration, 36; pulse, 68; temperature, 104°. Antifebrin pill.

April 11th.—Dead.

No. 4.—A grey horse, weight 1,350 lbs; with pulmonary fever, following a neglected catarrh of several days standing.

April 15th.—Respiration, 16; pulse, 72; temperature, 107⅘° Schneiderian membrane highly inflamed, discharge from nostrils; vesicular functions in both lobes rather increased, cough hesitating.

April 16th.—Respiration, 14; pulse, 64; temperature, 105°. Condition not much altered, appetite wanting, drinks often, but small quantities.

April 18th.—Respiration, 16; pulse, 60; temperature, 105°.

April 19th.—Respiration, 16; pulse, 60; temperature, 105⅕°. Condition same, except that he is inclined to lie down occasionally since yesterday.

April 20th.—Respiration, 24; pulse, 60; temperature, 105⅕°. Cough hoarse, dung soft; gave antifebrin at 1 o'clock.

April 21st.—Respiration, 20; pulse, 60; temperature, 104⅘°. Cough hoarse, left lung infiltrated; antifebrin at noon.

April 22d.—Respiration, 20; pulse, 50; temperature, 101°.

April 23.—Respiration, 14; pulse, 48; temperature, 101°. appetite returning, recovery rapid.

No. 5.—A grey horse, weight 1,400 to 1,500 lbs.

May 20th.—Arrived in the city at noon after thirty-six hours railroad travel. Has pulmonary hyperæmia. Head pendulous, one-half hour afterward commenced to shiver, circulation slightly accelerated, respiration triple. Verat. virid. comp. was given at 2 o'clock, and repeated at 4 o'clock. Application of mustard water on the costal region.

May 20th, 6 P. M.—Respiration, 80; pulse, 80; temperature, 106°. Lies flat; repeated the mustard bath and gave a hypodermic injection of morphia.

May 20th, 7 P. M.—Verat. virid. comp. Rectal injection of chilled water.

May 20th, 8 P. M.—Respiration, 60; pulse, 94; temperature, 105°. Venesection, one gallon of blood not very melanæmic. Rectal injection of cold water. Antifebrin.

May 21st, 7 A. M.—Respiration, 60; pulse, 66; temperature, 101.° Ate a bran mash.

May 21st, 2 P. M.—Temperature, 104°. Rectal injection and one hour later an antifebrin pill.

May 22d, 8 A. M.—Respiration, 24; pulse, 52; temperature, 103⅝°. Drinks moderately, indifferent to food, but appears more lively.

May 22d, 10 A. M.—Antifebrin pills; one-half hour later had chills which lasted about one-half hour.

May 22d, 6 P. M.—Respiration, 28; pulse, 40; temperature, 100°. Ate a good ration of mash, urinates freely, has an occasional vigorous loose cough.

May 23d, A. M.—Respiration, 28; pulse, 48; temperature, 103⅜. Antifebrin.

May 24th, A. M.—Respiration, 26; pulse, 48; temperature, 102°.

May 25th, A. M.—Respiration, 20; pulse, 44; temperature, 101°. Appetite fair.

May 26th, 10 A. M.—Respiration, 40; pulse, 60; temperature, 102°. Ate breakfast eagerly, but the groom gave him a bucket and a half of water to drink. Is shivering.

May 26th, 11 A. M.—Antifebrin pills.

May 27th, A. M.—Respiration, 40; pulse, 62; temperature, 102⅘°. Vesicular murmur of the lower third of the right lobe is diminished. Dung in solid balls. Appetite poor. Antifebrin.

May 27th, 8 P. M.—Respiration, 32; pulse, 50; temperature, 102⅝°. Reported to have had colicky pains late in the afternoon, but after a few alimentary evacuations felt relieved.

From now until the 30th he made a good recovery.

I am well aware that our capability to regulate this disease is limited; still the little should not be left undone. The old principle "there is no effect without a cause" will not yet allow me to step over to Nihilism, which seems to be growing in favor.

SHEEP DISEASES: THEIR CAUSES, NATURE AND PREVENTION.*

By Thomas Walley, M.R.C.V.S.

(*Continued from page* 266.)

Indirect Predisposing and Exciting Causes of Disease.

Having glanced over direct, we may now with profit consider those indirect influences which act as predisposing or exciting

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causes to the development of disease, and one of the most important of these is *the management of the land and of feeding*. Seeing that the growth of animals and vegetables moves in a circle, and that both derive their nourishment primarily from the earth, it follows that the earth must contain, in order for their vigorous growth, all the elements they require and that those elements must bear, as I have already remarked in reference to the blood, a certain definite proportion to each other.

Now it is quite clear that if the stockowner year by year takes from the land the important constituents of all organic growth by putting animals thereon and allowing them to devour the vegetable products and then devouring the animals himself or selling them to someone else to devour, the land must ultimately become impoverished: he cannot eat his cake and have it too.

It may be held that much of the material taken from the land is returned again to it in the shape of urine and dung, but, allowing that this is so, what about the yearly deficit produced by the removal of immense quantities of material in the shape of mutton, blood, horn, skin, wool, &c.? Then it may be said that the air and the rain supply vegetables with nitrogen and carbon. Granted, again, that this is so, what proportion of soluble matter, especially on hillsides, is washed out of the soil by rain?

The heather may be burned, but by doing so much of its nutrient matter is dissipated in the form of gas, which is largely carried away by the wind and benefits the neighboring fields; or, if in close proximity to the sea, the fishes mayhap. Certainly the ash of the heather contains a small quantity of potash and other salts which are thus restored to the grass; that is all, however—no nitrogen, no carbon. It would, I know, be simply absurd on my part to tell the stockowner, as I have heard of some people doing, to restore to his hill pastures, in the form of manures, that which he annually takes out of them. As a rule he has not the means to do so, and if he had, the task of manuring a thousand acres of hill would be a Herculean one indeed; but the farmer may give the poor impoverished land, or the best patches of it, something in the shape of lime to supply materials for the bones of the animals grazing on it, and salt to supply soda to the serum

of their blood; and if he cannot dress all the patches in one year he can dress them in rotation: I do not say dress the whole area of the hill pastures on a farm. There are hundreds of acres on which, by virtue of the absence of a matrix in the form of soil, manurial agents would be absolutely thrown away, but it is a poor hill on which there are not a few fertile spots—a few oases in the desert—and these are often the life of animals depastured on them. I will even go farther and say that some few such spots may be worth the expense of a little bone and a few pounds of good grass seeds. I have known a few hills, where it has been practicable, converted into a mine of wealth to sheep farmers by breaking them up and re-seeding; and it must be borne in mind that the good effect of improvements is not confined to the areas on which they are carried out, but that it extends around the borders of those areas by virtue of the improved manure (dung) from the sheep themselves.

Assuming, moreover, that circumstances will not allow of the carrying out of these plans, cattle can be depastured on some of the hills or parts thereof and a supply of artificial foods or dried natural foods be given to them; or, the same thing can be done with sheep instead of always taking them to the lowlands. I have known barren hills converted into fertile ones by this means; and, more, I have known diseases, such as "louping-ill" and "braxy," disappear from spots they loved to haunt, if I may use such an expression; and only a short time ago Mr. Fletcher Menzies related to me, when conversing with him on this subject, a very instructive instance of the conversion of a death-dealing hill into a healthy pasture in this way. I will also ask if there is anything to prevent the farmer from adding some of the necessary elements of the animal body to the artificial and dry foods in the shape of salt, magnesia (as Epsom salts); potash (as kainite or sulphate); and iron—as green vitriol? Two of these agents—salt and iron—not only destroy the germs of disease but the embryos of parasites also, while the others stimulate the digestive organs and kidneys to healthy action. All are cheap; and even if animals did not utilise all they took in they would return it to the soil in the urine and fæces. Iron is not likely to

be conveyed to hills in any form, seeing that there are no roads or streets over them and consequently no tires of wheels or horse-shoes to be worn away; neither is there any old iron lying about to rust.

I do not wish it to be concluded from what I have just said that I am an advocate for heavy manuring—far from it. I could relate dozens of instances of the injurious effects of such a system, but will only quote one or two. I have already directed attention to the effects of over-manuring swedes and turnips, and, as a striking illustration of my argument, I may point out that the application of large quantities of nitrate of soda to pasture land is a frequent cause of diabetes and weed in horses feeding on the grass or clover grown thereon, even when these are made into hay; and in my own practice I have frequently told my clients that their horses were fed on such grass or hay (though I knew nothing at the time of the district from which it had been brought) and subsequent inquiry has proved the correctness of my conclusions.

Neither animals nor vegetables can be said to be in a really healthy state if they are over-forced. Wheat grown on a dung-hill frequently fails to attain maturity. Turnips grown with excess of stimulants, especially nitrates, decay or decompose early. Near Edinburgh lately, turnips grown with manure were sold at £14, those with nitrates at £8 per acre, the dairymen averring that the latter do not keep. Mutton grown on ling and heather is sweeter and more satisfying than is the mutton of trough or manger-fed sheep.

I am quite aware that I may be told—and I have been so told—that I am laboring under a mistake; that plants will not take up excessive quantities of salts. If this were so, why do we see diabetes and weed when nitrate of soda is used in excess? and how is it that when sheep and cattle are fed on turnips and grass grown with a liberal supply of superphosphates or even of lime, the quantity of lime salts passed off by the urine is so great that concretions are formed in the bladder of the sheep which block up the worm-like appendage at the end of the penis and, if not removed, cause death by retention of urine? In bullocks, the lime

salts form concretions round the hairs at the end of the sheath which often imprison the urine and cause death by mortification of the sheath and surrounding tissues, or by blood-poisoning. Professor Johnstone analysed turnips grown with guano and farm-yard manure respectfully, and found that the ash of the former contained 19.39 per cent. of phosphoric acid, as against 7.73 per cent. in that of the latter.

Now, as excess of manure is injurious so its judicious application may be highly beneficial. Thus I have known diseases, such as "red-water," "braxy" and "anthrax" entirely disappear from pastures in which they had become, as it were, indigenous, by the application of lime, phosphates, or salt.

For all practical purposes, the best manures for the farmer are organic manures, if they can be got in sufficient quantity and *if put on the land before undergoing decomposition.* A man may delight in watching his laborers cut through the manure heap as they would through a mass of butter, but it must be remembered that such material has lost much of its most valuable constituents; its gases have been dissipated in the form of stench and its salts washed out by rain.

I will give one practical illustration of the difference between natural and artificial manures on sheep. During his lifetime my father never purchased, to my knowledge, an ounce of artificial manure other than Peruvian guano and occasionally lime and salt, and no man ever profited more by his sheep; but after his death the modern bailiff went in largely for artificials in the proper acceptation of the term and, figuratively speaking, the land became covered with the carcasses of sheep which had been "struck," *i.e.*, that died from *black leg* or similar affections.

In reference to supplementary foods, putting aside hay, I think there is nothing better than oats—crushed in preference—bran, crushed linseed and ground malt; and in reference to the latter it must be borne in mind that, independently of its nutrient properties, it assists very largely the digestive processes and its dust contains a fair percentage of potash. Of late half-malted barley has grown in the favor of some feeders, and particular attention has recently been directed to its value by Mr. J. Shaw,

of Walkington Towers Farm, Beverley, in the *Leeds Mercury:*—

"Since the malt duty was removed every farmer can make malt for himself, free from all restrictions, and the cost to him of making it is a nominal one.

"Formerly, very much was thought of malt as a feed for all stock, and it is especially good for cows, as they will upon it, with bran and other food, produce plenty of rich sweet milk all the winter through. Sheep, beasts, and horses all thrive and fatten upon a mixture of it and other foods, but of late years it has not been much used, as its cost has been higher than other feeders.

"Malt is termed green when the roots and stem of the barley, from which it is made, are sufficiently grown for it to be put upon the kiln to be dried. It is also at this stage of its growth that it is of the most value as a feeder, it being found that the green malt gives better feeding results than dried malt, and, as I will show later on, every farmer can easily make this sort of malt himself almost without any manufacturing cost.

"As I have already said, the general use of green malt has been curtailed by its comparative expensiveness, but this objection does not exist at the present. There is no better barley for making this malt from than that imported from Russia, being less liable to mould; and, singular to say, this sort of barley has never before been so plentiful nor so cheap as it is at the present time—in fact, it can be got at the chief ports at 6d. per stone, or £4 per ton, which is below the price of hay, undecorticated cotton cakes, and bran—in fact, feeding barley is at present more than 1¼d. to 1½d. per stone, or £1 per ton, cheaper than maize, and is not very much higher in price than straw is in some parts of the country.

"No doubt this unprecedented cheapness of feeding barley will cause it to be used largely in its unconverted state, either unground or ground into meal, along with turnips and other food, but I prefer it when converted into green malt, and for the benefit of those farmers who are inclined to follow my example in this respect, I may say that the process of conversion is as follows:—

"The barley must first be steeped overhead in water (allowing it room to swell) about forty-eight hours, and this can be done in any tank or large tub or casks which may be available (the latter can also be bought of any cooper for a few shillings each), into which a large plug-hole should be made at the side, as near the bottom as possible, and over the inside of the plug-hole should be fixed some perforated zinc (which can be got at any ironmonger's), so that when the plug is taken out, the water may be drained off through the zinc and plug-hole, and the barley left behind. It is a good plan to let the perforated zinc enclose a larger space than is occupied by the plug-hole, so as to let the water drain to it more quickly.

"When the barley has been steeped forty-eight hours, and the water drawn off, place it thickly upon a floor, say two feet thick, and let it remain there until some warmth is developed; it must then be thinned down to, say, 6 inches, and must be daily turned over until it strikes out its roots. As soon as these have grown a little, and show signs of withering, they should be sprinkled with a watering can, and the turning continued until the acrospire—or what would be the stalk if the barley were planted—has forced its way well up to the back of the barley under the skin. When this is accomplished, the barley has been converted into green malt, and is at the stage of manufacture which is of most value to the

farmer for feeding purposes. The whole operation from first wetting till ready for use will occupy from ten to twelve days.

"As regards the floor for growing the barley upon, a concrete one is the best, but either brick or wood will do; only, in the latter case, more moisture will have to be added whilst the barley is upon it. A wooden floor may also be cheaply covered with galvanized iron sheets, and is then even better than a concrete floor.

"It follows that the quantity steeped or wetted every forty-eight hours should be calculated according to what is required for two days' consumption; and any farmer who may wish for further information respecting the process can, no doubt, obtain it from his nearest neighboring malster.

"Mr. W. J. Harris, of High Hampton, Devon, has lately contributed a long article to the newspapers (of which a copy appeared in the *Mark Lane Express* of August 22), giving calculations showing that the deficiency in this year's crops of oats, hay, turnips, and straw amounts to 14,600,000 tons, and this estimate is also concurred in by other authorities. Mr. Harris further calculates that this deficiency can be made up by using 12,000,000 qrs. of feeding barley, and it is certainly fortunate for us that this article is at present cheaper than all other feeding corn, and that it can be bought at as low a price as hay and undecorticated cotton-seed cakes.

"In case a good fall of rain should now cause a sharp growth of succulent grass, it will be found advantageous to give dry barley to stock to prevent scour."

In recommending the above materials I do not wish it to be assumed that I underrate the value of other feeding stuffs. Far from it; all are good in their proper place and in proper quantities. Maize, for instance, is rich in heat-producing; beans, peas and wheat, in flesh-forming matters; and the three latter contain a tolerable quantity of potash also; and I cannot comprehend why sheep farmers do not cultivate, more than they now do, such crops as thousand-headed and other cabbage which could be readily conveyed to the poorer lands, or in the case of the thousand-headed cabbage eaten off in rotation. I must, however, deprecate the *injudicious allowance* of such materials to sheep, and, above all things, I abhor undecorticated cotton cake. I will here give one instance, out of many which have come under my observation, of the astounding ignorance which prevails in reference to the admixture and allowance of feeding stuffs. In the spring of this year I was consulted, by letter, about the death of a large number of sheep in Lincolnshire. After describing the symptoms presented by the animals, my correspondent went on to say, "The food of the sheep is as follows:—Waterloo cake, cotton cake, oats, maize, swedes (cut up). They run on grass land,

which is a dry layer, and *have as much of the above food as they can eat;* I may say they are pushed, and are very fat," and well they might be, and no wonder that on making the post-mortem examination my correspondent found "the bladder distended with urine and inflamed, and containing calcareous matter in its interior; the lungs congested and the kidneys flabby and degenerated."

The deductions I would draw from the foregoing observations for the guidance of the stockowner are—1st, That he cannot over-force sheep without suffering the penalty in the shape of a large percentage of deaths, and in great waste of material; 2d, That all sudden changes of management are injurious in the extreme. Judicious changing of food and pasturage should always be practised and, where it can be done, the resources of his own holding should be supplemented by the farmer from the superabundance of his neighbors; *sheep require change more frequently than do other animals.* I have already referred to my father's management of his sheep. No man prepared more sheep for the butcher, in proportion to the size of his farm, than he; but they were scattered in lots all over the country side and frequently changed, and when put on to fresh turnips they were limited as to quantity, particularly at the outset, and here I may remark that in turnip feeding there is often more food wasted and fouled than is made use of; 3d, I would say to the stockowner, *let your feeding be as natural as possible; don't waste your substance in buying everybody's celebrated 'compositions, but purchase the raw materials and make your own mixtures; then you know what you are giving to your sheep, and you are not "paying through the nose," by purchasing stuff which in many instances is not worth the price paid for it by* 20 *or* 30 *per cent.*

In-breeding is a predisposing cause to disease, at least in a relative point of view or outside certain limits, and those limits are regulated by the vigor or otherwise of the animals engaged. Where the male and female are alike vigorous and structurally perfect the evil effects of in-breeding may be postponed; but even here, if it is carried too far, defects will crop up and they will increase rather than diminish in each succeeding generation. A

diffusion of fresh blood is a good thing in more senses than one, and he who neglects Nature's demands in this respect must be prepared to pay the penalty. A plan adopted by Mr. Fletcher Menzies is, I think, an exceedingly simple and good one. It is based on the well-known fact that sheep depastured on large tracts of land do not wander very far a-field, but confine themselves to comparatively limited areas; and consists in shifting the rams to fresh tracts every two or three years; thus, given three rams placed at three different points one year, they are so interchanged in location each succeeding year that at the end of the third year each section of the flock has been served by a different ram.

Exhaustion of Males.—In no case should a ram be asked to do more than he is capable of doing in this respect, for if he is overtaxed the breeder must be prepared for the consequences in the shape of uncertain crops and weakly lambs.

Exposure to cold and wet is both a predisposing and exciting cause of disease; and of all the different kinds of cold, that dependent upon east winds is the most depressing to animals, and the most inimical to the growth of vegetables: of the east wind it may be said, that

> Desiccate itself,
> It shrivels up and dries the membranes,
> Drives back the stream of blood
> And blanches hand and cheek
> Of all who are exposed
> Unto its baneful power.
> Extended is its influence
> E'en to vegetation. The young
> Green shoots in one short night
> Are withered, crisped and browned,
> Till not a semblance lives
> Of their identity.

Yes, this is one of the banes of the flockmaster and the most disheartening of foes to the shepherd who has in the early spring been watching the growth of the young grass in some specially favored spot and has been calculating what a nice bite he will shortly have for his lambs and ewes; but, too often in one short night his hopes are dissipated, and in place of seeing his lambs

thriving he picks them up cramped and stiffened, and in a few days is mortified by seeing them die from louping-ill, swung-back (paralysis), joint-ill, or so called navel-ill.

Cold and wet are especially injurious to parturient sheep and newly-born lambs; and, if possible, lambing ewes should always be placed in dry situations; or, if practicable, housed either by night or by day, or both, according to circumstances: and I would particularly impress the fact upon all breeders, that if the system of an animal is depressed by debilitating and lowering influences it only requires that some existing cause such as this shall come into operation to call a latent disease into existence: it is "the last straw that breaks the camel's back." Low forms of inflammation and congestion of the lungs, bronchitis especially, are induced by cold and wet in all animals whose systems are debilitated or whose blood is poor.

Parturition is a prolific predisposing and exciting cause of disease, as at this period of an animal's life there is a stage of great excitement followed by a corresponding degree of depression: but, in addition, there is a large quantity of waste matter to be got rid of from the womb, and the system has to regain its original state; and all this at the expense of the constitution.

There are many agencies of an adverse character against which an animal would successfully do battle under ordinary circumstances, that overcome the vital energy when depressed by the lowering influences of parturition; especially is the system incapable of fighting against the effects of putrefactive (septic) organisms or their products, and the former lodging in the unhealthy fluids in the womb—which form a favorable pabulum for their growth—easily gain access to the circulation through tissues weakened by being supplied with impure or impoverished blood; the result is blood poisoning (septicæmia), septic inflammation of the womb, of the bowels, or of the udder, and death not only of the mother, but of the lamb; the latter giving evidence also of septic inflammation of the umbilical vessels (naval-ill), and putrefactive diseases of the joints, much of which may be prevented by tying the cord at birth and by applying an antiseptic thereto.

Not only during the rutting season, but onwards through the

period of lamb-bearing, at the time of parturition and in the subsequent nursing, is great care in management demanded and a sufficiency of nourishing food required in order to prevent loss and disappointment.

Excitement is up to a certain point good for all animals, but there are few in which it may with greater ease be pushed to excess than in the sheep; it is especially to be guarded against in the case of in-lamb ewes, as it is frequently an exciting cause to the development of latent disease and often causes premature birth.

Fatigue, *clipping* and *exposure* to *cold wind* (a *chill*) induce congestion of the lungs.

Age.—Young animals are peculiarly predisposed to diseases depending upon rapid tissue changes for their production; and old animals to diseases of a debilitating or asthentic character, hence the large percentage of deaths in the old "crocks" at lambing time.*

* While it is impossible that I can deal at length with every individval disease of this class, I may briefly refer to joint-ill, navel-ill, and lambing or milk fever.

Joint-ill, except as a purely sporadic affection, is always due to a combination of two sets of causes—first, to a depraved or impoverished condition of the blood of the mother (nearly always in my experience brought about by injudicious management) and in consequence of which the milk contracts deleterious properties; second, to the combined effects of cold and wet. In some cases the actual cause is inflammation of the umbilical vein, as a result of which abscesses form in the liver and supperative inflammation of the joints (pyæmia) follows. Judging from the clinical characters and course of the disease we are warranted in the conclusion that the actual cause is a micro-organism—a micrococcus probably.

Navel-ill or *navel-pocking* is the result, in the first place, of a depraved condition of the mother's system; and, in the second place, to the action of septic germs on the clot of blood which is always formed in the umbilical vein of newly-born animals. If the system is healthy no injurious influence is exerted by septic organisms; if the contrary, the altered blood acts as a splendid pabulum for their development—septic (or sometimes erysipelatous) inflammation is set up, the products of which become absorbed and set up putrefactive inflammation of the joints, particularly those of the hind limbs; but in some cases the inflammatory action extends along the cellular tissue to the fore legs in a forward direction, and to the abdomen, thighs and hind legs in a backward direction, the involved parts quickly becoming of a black or purple hue from mortification. Both in joint-ill and in navel-ill the condition of the blood of the mother should be improved and

To summarize the remarks I have so far made I may say that all diseases which have their origin in an altered state of the blood—and such form the vast majority of the diseases from which sheep suffer—may be arranged under four heads.

1. Those marked by *deficiency in the quantity of blood*, or of certain important elements thereof, and especially diminution of its red cells (*anæmia*), in which debility is the marked feature, and in which blood medicines (phosphates, iron, and cod-liver oil) are required.

2. Those marked by *excess of the normal elements of the blood*, either of its fat-forming or flesh-producing materials, or both (*hyperæmia*), and in which congestion, inflammation and hemorrhage are apt to occur in one or more of the important organs of the body, as the liver, lungs, and intestines; and in which some exciting cause, such as cold, is alone required to determine an attack: in these, depletives (as bleeding with laxative and saline alteratives) are required.

3. *Impoverishment and degradation of the blood* (*spanæmia*) the degraded matter being passed out by the glands of the bowels, producing *diarrhœa* or *dysentery;* or by the kidneys, producing *albuminous or bloody urine or diabetes;* in which

the navel-string of the lamb should be tied with a silk or cotton ligature and thoroughly dressed with some antiseptic lotion or liniment immediately after birth.

Lambing Fever.—Septic or erysipelatous inflammation of the womb (metritis) has its origin also, in the vast majority of instances, in a depraved condition of the blood. In some instances the affection is undoubtedly due to the local access of septic germs by the contaminated skin of the hand of the shepherd, by wounds, or by retention and subsequent decomposition of the after-birth. But, while I make this acknowledgment, I cannot too strongly express the opinion that in most cases the disease is primarily of systemic origin, aud this is proved by the fact that its progress can generally be arrested by the adoption of judicious alterative treatment, by the fact that when the disease is prevalent amongst ewes, their lambs are the subjects of joint-ill and navel-ill, and by the further fact that the udder is frequently the seat of septic or erysipelatous inflammation; and, after death, by the existence of effusions and extravasations into the various tissues of the body.

Notwithstanding that I hold this opinion, I must insist upon the necessity of the application of some antiseptic lubricating agent to the hands and arms of shepherds engaged in delivering ewes, as also to the passage (vagina) of the ewes after delivery, *i. e.*, when artificial aid is required, or the ewes are unhealthy.

dropsies are of frequent occurrence (as in *water-braxy*), and in which blood medicines, restoratives and alteratives, are required.

4. *A depraved condition of the blood*, usually due to the action of putrefactive germs producing blood poisoning (*toxicæmia*); marked by rapid effusions of water and blood into the system and rapid putrefaction, as in *stinking ill* or *red braxy;* and in which medicines are of little use, though antiseptics and stimulants may be given.

(*To be continued.*)

SNAKE BITE AND ITS ANTIDOTE.—III.

EXPERIMENTS WITH CROTALUS VENOM AND REPUTED ANTIDOTES, WITH NOTES ON THE SALIVA OF HELODERMA ("GILA MONSTER.")

By H. C. Yarrow, M.D., Curator Dept. Reptiles, U. S. National Museum.

(*From Forest and Stream*).

(*Continued from page* 275.)

Let us now examine the testimony of others as to the efficacy of the permanganate as an antidote to serpent venom. The first to repeat de Lacerda's experiments was his former assistant Dr. Couty, who declared in the *Compt. Rend. Acad. des Sc.*, Par., 1882, April 24, that the permanganate was not an antidote, and that a favorable opinion upon its merits should be reserved until further experiments had been tried.

M. Vulpian, in *Compt. Rend. Acad. des Sc.*, Par., 1882, March 6, 613, states that he endeavored to repeat de Lacerda's experiments with the permanganate of potash and had come to the conclusion that an intravenous injection of some centigrammes of permanganate can have no influence upon venom after it has been taken up by the circulation, particularly as it is decomposed after a few instants, and in case an effective dose be given, death might result from the antidote. In fact he says it is difficult to explain how the bites of *Bothrops* were cured in Brazil by the permanganate unless sueh bites are not always mortal. In his *resumé* he says there can be no doubt but that the permanganate can only be useful after recent bites, for if one or several hours

elapse no antidotal effects can be produced. He also states that it would be wrong to rely upon this drug in cases of bites of other venomous reptiles in which the bites are often, or more rapidly, mortal.

Dr. G. Badaloni reports in the *Lancet, London*, 1883, I., 768, that from his experiments with the permanganate he is led to believe it is of no avail in cases of poisoning from viper bite. Mr. Vincent Richards, of Calcutta, who used permanganate in a great number of experiments regarding its antidotal power over the cobra venom, has reached the following conclusion:

I. "That in dogs no appreciable symptoms of cobra poisoning followed by the hypodermic or intravenous injection of a watery solution of from two to seven centigrammes of cobra poison, when previously mixed with from one to three decigrammes of permanganate of potash, though, under ordinary circumstances, such quantities hypodermically injected are more than sufficient to produce fatal results." This statement simply proves that the salt renders the poison inert when mixed together in a vessel, not in the body of an animal, and our own experiments show a similar condition.

II. "That when similar quantities of a watery solution of cobra poison were hypodermically injected into dogs and were followed either immediately or after an interval of four minutes (the longest interval I have yet sufficiently tested), by the hypodermic injection with the same part of a watery solution of permanganate of potash (one to six decigrammes) no appreciable symptom of cobra poisoning resulted." This experience of Mr. Richards differs entirely in its result from ours, as is shown by the notes given above.

III. "That when glycerine was used instead of water, to dissolve the dried cobra poison, the permanganate of potash appeared to have no power over the virulence of the virus." This statement, it is thought, has been disproved by our own experiments already related.

IV. "That after the development of symptoms of cobra poisoning the injection of permanganate of potash, whether hypodermic or intravenous, or both, failed to exercise any influence upon the symptoms."

V. "That permanganate of potassa possesses no prophylactic properties, since death followed the hypodermic injection of 3½ centigrammes of cobra poison in watery solution in the case of a dog which had been hypodermically injected a few hours previously with 8 decigrammes of the agent in solution."

VI. "That it would appear to be absolutely necessary that the permanganate to be efficacious should come into actual contact with the cobra poison."

VII. "That although no symptoms of cobra poisoning followed the injection of cobra poison and permanganate of potash, sloughing of the part injected sometimes followed." Sloughing we found to be extremely rare in our cases, as will be seen from the notes, in fact a 5 per cent. solution of the permanganate injected several times into the leg of a rabbit had no appreciable effect.

VIII. "That up to the present time it has never been experimentally shown that any agent has either the power to neutralize the cobra poison lying in the tissues, nor to prevent death when four minutes had elapsed from the time of injection of the poison to that of treatment."

IX. "That if permanganate of potash has such power to destroy so subtle a poison as that of the cobra, it is probable that the hypodermic injection of the agent in the bite of a rabid animal would destroy the virus which causes that terrible disease, hydrophobia."

The writer would remark that as early as 1870 he treated three cases of persons bitten by rabid animals with applications of a solution of permanganate of potassa after incision of the bites had been performed; none of the patients had *rabies canina*.

Sir Joseph Fayrer states in his address to the Medical Society of London, speaking of Richards' views, as follows: "I agree with Richards that so far as it goes it is a good local application and as such ought to be used; or, in its absence, tannic acid or *liquor potassæ* might be resorted to with the same object; but as a constitutional remedy, as a physiological antidote, it is powerless, like all others that have been tried and failed to do good."

Dr. de Lacerda himself, although he attributes the highest value to it as a chemical antidote, both as a powerful oxidizing agent and by the action of the potash, says, as to the idea of finding a physiological antidote for snake poisoning: "I entirely agree with you that it is a Utopia; although I found that *liquor potassæ* practically answered the same purpose as permanganate of potash, it did not decompose the venom, but merely destroyed the tissues in which the venom was lying, thereby preventing its absorption; and it was subsequently discharged with the slough. This was proved by the fact that when the venom and *liquor potassæ* were mixed and injected subcutaneously, no constitutional effect followed; but if the same mixture was diluted with water and injected into a vein or into the peritoneal cavity of an animal, symptoms of cobra poisoning were soon manifest, and the animal died."

As opposed to the opinion of the persons quoted, we have on the affirmative side of the question only de Lacerda's statements and cases, and one or two others. The first is mentioned by Dr. de Fourier in the *Journal de Hygiène* for Sept. 22, 1882, in which a case is mentioned of an individual having been bitten by a very large serpent supposed to be poisonous, to whom a solution of the permanganate was given internally and hypodermic injections were also employed; the patient recovered. Another case is related by Dr. E. Bories, in the *Polyclinic, Philadelphia*, 1883, I., 57, in which the patient was bitten by a rattlesnake. Four hours after the bite one-half grain of permanganate of potash was injected subcutaneously and two grains were given internally every hour. Ammonia was applied to the wound and the patient recovered.

Before leaving the subject of the permanganate, it may be well to state de Lacerda's hypothesis of the action of this salt as he himself communicates it in a letter to Dr. Fayrer: "Passing now to the essential part of the discussion that took place in the Medical Society, I will give in a few words how I comprehend and how I judge that the efficacious effect of permanganate of potash should be comprehended. You yourself, by experiments made in 1869, recognized that permanganate of potash mixed with the venom took from it its noxious properties. Certain

conditions of the experiments led you, however, to deny the efficacy of this chemical agent in the cases in which the venom had been inoculated in the tissues. As you know, however, I have demonstrated by numerous experiments and innumerable clinical facts that the neutralization takes place even in the midst of the tissues, which makes this substance a chemical antidote of great value. The permanganate of potash acts upon the venom, destroying it in two ways: first as a powerful oxidizing agent, second by the potash that forms the base of the salt, passing a current of nascent oxygen through a concentrated solution of the venom, which loses entirely its noxious properties. This experiment, which I have repeated many times, gave me always the same result. Let us suppose now, that an individual is bitten. If injections are made in the place of the bite from five to ten minutes after the inoculation of the venom, this is promptly neutralized *in situ* and the individual runs no further danger. A great number of facts have been observed like this in Brazil. If aid is given late, hours after the bite, when the tumefaction of the wounded part is very pronounced and the phenomena that indicate the entrance of the venom into the circulation have already declared themselves, injections repeated in various parts of the wounded members parting from the wounds made by the fangs of the reptiles still give very good results. Nor is it difficult to explain the good results in this case. The venom, as I have said, acts first locally and only enters the general circulation after the lapse of a certain time, and by portions. The permanganate of potash meeting in the tissues with the venom, which is little by little diffusing itself, neutralizes it in the various points when it has been diffused and thus stops the source of supply. The entrance of new and successive portions of the venom into the general circulation being thus impeded, the organism takes charge of the elimination of what has already been introduced and which was insufficient to compromise the life of the individual."

It is only fair to add that the poison of the *Bothrops* is much less venomous apparently than that of the cobra and *Crotalus*, and this may account for the good results obtained by Dr. de Lacerda, but we should not forget also that Mitchell makes the statement that at least seven-eighths of patients (bitten by the

Crotalus) recover, and that the mere fact of their surviving can assuredly be no test of the value of any particular form of treatment.

Dr. E. R. Sisson, of New Bedford, Mass., sends to the Tampa (Fla.) *Journal* this report of his successful treatment of a dog bitten by a rattlesnake:

"On March 1 my pointer Joe wss bitten by a rattlesnake. It being my custom, while hunting in Florida, to go prepared for an emergency of this kind, and being present at the time of the accident, I lost no time in applying the treatment.

"First, I pressed the wound to make it bleed as freely as possible; then I sucked it; after this applied five drops concentrated spirits of ammonia to the open wound, immediately following by ten drops of the fluid extract of jaborandi hypodermically, holding it in the puncture for two minutes. After making these local applications to destroy the action of the poison on the blood, I gave 1 oz. of whiskey with a drop of the ammonia internally every hour. After this, stopped the ammonia and gave whiskey and milk; six ounces of milk to six teaspoonsful of whiskey, decreasing gradually the whiskey for the first twenty-four hours, as the circulation and strength improved, when I stopped it altogether, and gave 6 oz. of beef tea, making the tea of Liebig's extract, usual strength, alternately with the same quantity of milk, once in six hours. This course was followed for sixty hours, when the animal voluntarily took small pieces of fresh beef. From this time on his improvement has been continual, having hunted the dog twice within the last three days, with all his usual vigor, and no loss in the strength of his nose.

"This is my first experience in the treatment of a rattlesnake bite, and I give it to sportsmen for what it is worth.

"No treatment, in my opinion, will amount to much in such a case, where the circulation is involved, unless applied immediately and continued regularly for at least seventy hours or more, with rest and freedom from all excitement.

E. R. Sisson, M. D."

Dr. Yarrow advises us that Lieut.-Com. William P. Randall, U. S. Navy, also vouches for the above.

FIRST INTERNATIONAL CONGRESS ON TUBERCULOSIS.

SYNOPSIS OF THE QUESTIONS TREATED.

FIRST.—*Of the dangers resulting from the use of meat and milk of tuberculous animals and means to prevent them.*

Mr. Arloing proposed a vote on the following conclusions:

1. Immediate insertion of tuberculosis amongst the list of contagious diseases.

2. Entire prohibition of the use of the meat of tuberculous animals, until means of rendering it harmless are discovered.

Mr. Nocard said the meat of tuberculous animals may, in some cases, contain elements of danger, but this is the case in but few instances, and even when its use is dangerous it is only in a very limited degree.

Mr. Baillet thought that, First—It is necessary to avoid the consumption of the meat of all subjects in which tuberculosis is generalized and is accompanied with absolute or relative emaciation of the animal. Second—That the entire seizure of the meat is not justifiable in fat animals, or in those in good condition, whose diseased state was not detected during life, except in the cases where the lungs, pleura, glands and all parenchymatous organs show internal tubercular lesions. Third—That in all other cases it is only necessary to abstain from the consumption of such organs as are more or less diseased, with the different glands of these organs and the surrounding muscular structures. Fourth—That any other measures varying from the preceding would have a detrimental effect upon the breeding of animals, the supply of markets and the institution of the services of meat, and such interdiction would be without advantage to public health.

Mr. Butel considered that the meat of tuberculous animals having been experimentally proved to be virulent, and human phthisis not unusually finding its origin in butcher shops, the use of all meat of tuberculous animals ought to be suppressed, this being the only efficacious means, and very different from a mere partial seizure. As for the milk, he believes that dairies ought to be submitted to periodic veterinary inspection, as is done in Holland and Denmark.

Mr. Veyssiere believed that the duties of inspectors ought to be better defined.

Mr. Spillmann contended for a certificate of origin for all animals sold, and for a severe meat inspection with immediate compulsory destruction of all tuberculous individuals.

Mr. Rossignol considered that measures of precaution were excellent, but wished to have them supplemented by the indemnity of the owners.

Mr. Guirand asked for the prohibition of clandestine or concealed slaughtering of animals.

Mr. Maule demanded a close inspection of fowls.

Mr. Aureggio thought that all meat ought to be rejected where the disease was present in any degree, and recommended the indemnity of owners.

The discussion was continued by Messrs. Thomassen, Van Hertsen, Siegen, Robinson and Dionis des Carrieres, who recommended the institution of experiments on convicts condemned to death. Messrs. Degive, Peuch, Larmet, Guinard, also participated, and it was closed by taking a vote on the first motion, viz.: "*It is urgent to carry out by every means, including indemnity to interested parties, the general application of the principle of the entire prohibition and total destruction of all meats coming from tuberculous animals, no matter to what extent the specific lesions may be found.*

This was carried by a large majority.

SECOND.—*The human race, the various animal species, and organic media considered from the point of view of their aptitude to tuberculosis.*

Mr. Degive suggested a mode of preventing the possible dissemination of the disease by vaccination. In Belgium, when the vaccine has been obtained, the animal is killed and inspected before the virus is used.

Mr. Chauveau acknowledged the value of the suggestion, but considered the danger exaggerated on account of the difficulty of inoculating tuberculosis through the hypodermic method.

Mr. De Brun read a communication on "Tuberculosis in Syria."

Mr. Piot stated that tuberculosis is rare in Cairo, but that when occurring, whether in man or animals, it is always rapid in its progress.

Messrs. Chantemesse, Widal, Galtier, Cadeac and Arloing showed that the virulence remains for two months, and even more, in tuberculous baccilli immersed in water.

Mr. Arloing recommended, First—for sick persons who are obliged to eat raw meat the use of that of the sheep or the goat. Second—That those who drink blood should also confine themselves to that of the same animals. Third—That the same blood be used in distilleries for the clarification of wines and liquors.

Communications were presented by Mr. Robinson on "The Tuberculosis of Asia;" by Mr. Solles, on "Heredity in Guinea Pigs;" by Mr. Galtier, on "The Heredity of Animal Tuberculosis;" by Mr. Robeis, on "The Relation Between Lactation and Tuberculosis;" by Messrs. Ferraud and Malvoz, on "The Heredity of the Disease;" by Mr. Agurre, on "Tuberculosis in Chili;" by Mr. Arloing, on "The Inoculation of Animals as an Element of Diagnosis of Human Tuberculosis," with many others, which shed but little light on the great question of the transmission of tuberculosis from animals to man.

THIRD.—*Ways of introduction and propagation of the tuberculous virus in the economy—Prophylactic measures.*

The following papers were read: Mr. Torkomian: On "The Sequelæ of Inoculation of Tuberculous Virus by an Anatomical Wound. Result—An anatomical tubercle without generalization;" by Mr. Jeannel, on "The Generalization on Experimental Tuberculosis;" by Mr. Tscherning, on "Local Tubercular Infection, observed in a veterinarian who wounded himself in making a post mortem examination—only a local lesion;" by Messrs. Straus and Wurtz, on "The Resistance of Fowls to Tuberculosis by Injection;" by Mr. Petresco, on "Contagion by Sputa;" by Dr. Jacobi, on "The Tuberculosis of the Thymus Gland," and these were followed by numerous others on the subject, establishing the various modes of development of the disease.

FOURTH.—*Early diagnosis of tuberculosis in man and animals.*

A paper was read by Mr. Espina Y. Capro on "The Early Diagnosis in Man;" by Mr. Arloing, on "The Inoculation of Animals as an Element of Diagnosis of Tuberculosis in its First State;" by Messrs. Verneuil and Clado, on "The Diagnosis of Tuberculous Lesions by Inoculation in the Peritoneum of Cobayes;" by Mr. Cagny, on "The Diagnosis of Tuberculosis in Animals;" who thought the diagnosis easier than it is generally considered to be, especially for phthisis pulmonalis; by Mr. Nocard, who was willing to admit the possibility of a positive diagnosis by physical signs, but believed that it can be made more so by inoculation or the direct examination of the suspicious products. The hypodermic inoculation of the guinea pig is the best method of conducting the examination of the products of the sputa for the baccilus of Koch; Mr. Nocard had found intestinal and even mammary tuberculosis most difficult to diagnosticate in a positive manner.

At the last sitting of the congress four propositions were presented to the meeting and adopted:

1. It is proper to consider as belonging to the province of Boards of Hygiene all questions relating to contagious diseases of domestic animals, including those which, at present, do not seem to be contagious to man. To vaccinia, glanders, hydrophobia, anthrax and tuberculosis, other infectious diseases, occupying a similar common position, may hereafter be added.

2. The motion adopted at the conclusion of the first discussion was amended, on motion of Mr. Laho, to affirm that this recognition of tuberculosis amongst contagious diseases be declared as possessing an international character.

3. It was recommended to have instructions in a simple form distributed in large quantities in cities and country towns, in which should be indicated the means of guarding against the dangers of tuberculous infection through the use of food, and especially of milk, and the method of destroying the virulent germs of the vessels in which sputa of phthisis may be received.

This was amended by Mr. Guinard's proposition that the instructions include linen, clothing and other objects used by phthisic patients.

The propriety was affirmed of subjecting—

4. Milk dairies to special inspection in order to ascertain certainly that the cows are not affected with diseases contagious to man.

The congress adjourned to meet in 1890.

EXTRACTS FROM FOREIGN JOURNALS.

BUCCAL ABSCESS DUE TO THE PRESENCE OF A NEEDLE.

By Mr. Haan.

This accident, which is one of rare occurrence in solipeds, comparatively to what occurs in ruminants, was detected in the exploration of an abscess of the maxillary space. The animal, which had for about two months been affected with a severe attack of angina, had become affected with abundant salivation and experienced great difficulty of mastication. The saliva was mixed with portions of food, and escaped principally from the left commissure. The tongue was swollen and highly colored,and hung out of the mouth; the mucous membrane of the mouth was highly inflamed, and on the left side of the tongue an elongated sore appeared, extending from the frœnum to the second lower molar, the exploration of the parts showing that there was no necrosis or caries of the bone. There was no bad smell from the mouth. The maxillary space was somewhat tumefied, and at first the case was considered as one of simple buccal abscess, and a simple form of treatment prescribed, as seemed to be indicated. On the following day, observing that the saliva was mixed with an abundant flow of pus, of comparatively laudable quality, in order to prevent the possible danger of its collection in the mouth and around the bone, the puncture of the swelling of the maxillary space was performed with the actual cautery. This gave exit to a large collection of reddish pus, more or less concreted, of old formation, and the exploration of the cavity with the finger revealed the presence of a common sewing needle. Ordinary attention to the abscess after the removal of the cause was followed by rapid recovery.—*Journal de Zootechnie.*

RABIFORM SYMPTOMS IN GASTRITIS OF CATTLE.

By Mr. Detroye.

In order to guard against the possibility of error in the diagnosis of this affection, the author reported two cases in which the act of vomiting was present. Not appreciated at its value in the first case, it proved a means of diagnosis in the second. Both animals exhibited similar suspicions symptoms. There were diminution of lactation, extraordinary excitement, staring eyes, dilated pupils, mouth foaming and slobbery, violent efforts to break loose and attack the persons looking on, and more or less ptyalism. Both patients also exhibited the symptoms of animals about to vomit, viz.: arched back, contraction of the abdominal walls and expulsion per mouth of some of the contents of the stomach. Both animals recovered, the first without treatment and the second by mild therapeutics and regular diet. The diagnosis of suspected rabies made in the first case was not entertained in the second, on account of the appearance of the act of vomiting, misunderstood in the former, but meeting with proper attention in the latter case, and being interpreted as a symptom of inflammation affecting one or several of the stomachs.—*Ibid.*

USE OF SNOW IN VETERINARY PRACTICE.

By Mr. Repiquet.

In these days of hydrotherapy and of the use of water in its various modes and forms, the history of the three cases reported by the author are not without interest, especially to practitioners in the more rural districts, who have not always at their disposal all the means and curatives offered by the pharmacopia and the pharmacy. The first case is that of a ventral hernia, of very large dimensions, situated on the left side, resulting from a heavy fall. Called during the night, in the middle of winter, and having no conveniencies for the application of the necessary apparatus, Mr. R. decided to use snow, with which view a bag was laid over the part, being kept tightly in place with cords, and between that improvised bandage snow was packed in and pressure maintained

by means of a surcingle. Directions were left to have the snow renewed as often as was necessary, and this treatment was continued for twenty-four hours. The next day the hernia had disappeared, and it did not return, and the animal resumed his work on the twentieth day.

The other two cases were sprains of the fetlock, treated by a somewhat similar method. In both cases the animals made a recovery in from twelve to fifteen days—a rapid cure for such lesions—though one of them became lame again and had to be submitted to more severe treatment.—*Ibid.*

NEUROMATOUS DIATHESIS IN A COW.

By Mr. Ch. Morot.

This is an exceptional record of a comparatively uncommon form of disease. The cow which was the subject of this record was an animal about fifteen years old, in good condition of flesh and fat, rating as about a second quality of butcher's meat. After being killed an examination of her fore parts revealed the presence of 1,325 neuromatous growths of various sizes, and, in fact, there were undoubtedly a great many more, which were not and could not be counted without injuring the appearance of the meat for the market. Of these neuromas 134 were found at the base of the heart, on the surfaces of the large vascular trunks and of the auricles, and 22 were situated around the larynx and in the neighborhood of the base of the tongue. Upon the various nervous branches around the brachial plexuses there were 358 tumors of various dimensions, from the size of a millet seed to that of a large almond. In the thoracic cavity some 811 were counted, situated between the ribs, under the pleura, or outside the chest, in the anterior part of the ilio-spinalis muscle.

The interest of this case is due not only to the enormous quantity of the neoplasms found, but also to the rarity of the affection, which is one the records of which are exceedingly uncommon.—*Ibid.*

PROFESSIONAL ITEMS.

We have received the announcement of the fourth year of the comparatively new departure of the Laval University of Quebec—the Veterinary Department. Prof. J. A. Couture, V.M., the Director, is assisted by Dr. N. P. Cummings, V.M., and several other teachers of the medical department of the University. The course is of *three* years, and is given in French. Fees, $150 for the course, or $50 a year.

The following gentlemen received their degree at the last commencement: Mr. E. F. J. McKay, G. W. A. Beaulieu, Alphonse Lemoine.

SANITARY BULLETIN.

The *Monthly Bulletin of the Iowa State Board of Health*, published at Des Moines, gives the following interesting item relating to the presence of contagious diseases among domestic animals during the months of May, June and July:

" State Veterinarian Dr. Stalker examined, during the months of May, June and July, 445 horses, and found among them 67 cases of glanders and quarantined 60 more on suspicion of being affected with the same disease. He also inspected 924 head of cattle, of which 832 were found suffering with anthrax and 92 with actinomykosis."

If the example of the Board of Health of Iowa were followed by those of other States, a veterinary sanitary report might be published monthly or quarterly which would largely aid in the work of an international report, such as is prepared and published in Europe, as shown by the various veterinary publications issued in that quarter of the world.

SOCIETY MEETINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

The Pennsylvania State Veterinary Medical Association held its meeting at Easton, Sept. 4th, President Thos. B. Rayner in the chair.

On roll call, members Blank, Zuill, Rayner, Gladfelter, Hooker, Hoskins, Custer, Phillips, Keil, Hart, Sallade, Isaiah Michener, J. Curtis Michener, Keelor, Rohn and Schaufler responded.

With one correction the minutes of the last meeting were read and approved.

The following names for membership were favorably acted upon by the Board of Trustees and accepted as members of the Association: Dr. Chas. E. Bridge, Philadelphia, graduate of Am. Vet. College; Dr. Simon S. Moyer, Easton, graduate of New York College; Dr. A. W. Radley, graduate of Am. Vet. College; Dr. Joseph C. Thompson, Norristown, M.R.C.V.S., London.

The members were introduced in a few well chosen remarks by Dr. James W. Sallade.

The Committee on Legislation reported their readiness to present the bill adopted by the Association, at the opening of the next session of the State Legislature.

The Committee on Intelligence and Education reported a very satisfactory condition of the profession throughout the State; a very acceptable addition to the number of graduates added to the State roll during the preceding six months, and a growing recognition of our calling.

An amendment to the by-laws was adopted, whereby each member on signing the by-laws pledges himself to forfeit his certificate of membership on resignation from the Association.

Dr. Hart then made a very gratifying statement of the results of his resignation from the position of veterinarian to the People's Mutual Live Stock Insurance Company. A vote of thanks was accorded him for his fidelity to the Veterinary Association.

Notice was given of an amendment to the by-laws for creating a College Membership Committee, to be composed of a member of each college represented in our Association, who shall keep the Corresponding Secretary informed of any new graduates locating in our State from their respective colleges.

After a recess for dinner, which proved a very enjoyable affair, Dr. Isaiah Michener introduced the subject of the so-called disease "cerebro-spinal meningitis." He defined it as a nervous disorder, due to a special poison, a vegetable mold, generated in cesspools, etc., etc., and given into the air or taken into the food and striking the nerve centres and ganglia, often producing death in as short a period as six hours; not inflammatory in character, producing a complete paralysis of the muscles of deglutition.

A discussion followed as to the effect of brewers' grains and bad hay acting as a factor. The miasmatic character of the disease was strongly dwelt upon, and that it probably produced its first impression upon the peripheral ends of nerves was brought out, and much interesting evidence was offered from members who had witnessed many outbreaks.

The meeting adjourned to meet in Philadelphia in March, 1889.

W. Horace Hoskins, *Secretary.*